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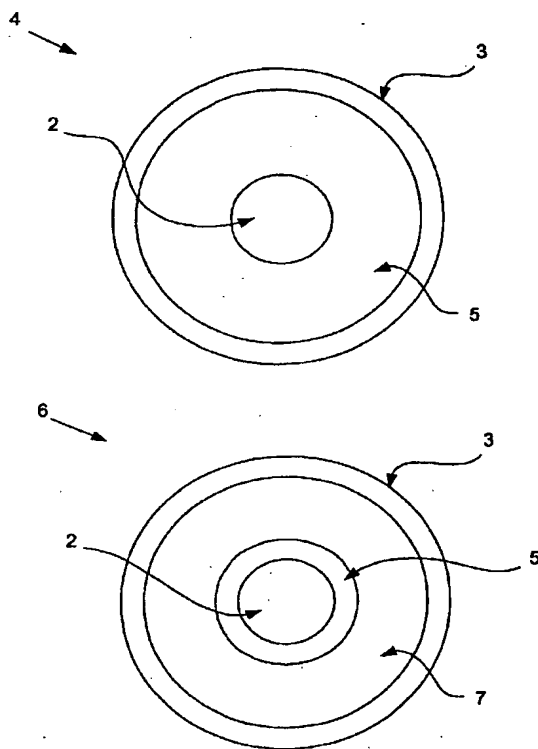
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(54) Title: COMPOSITE QUANTUM DOT STRUCTURES



(57) Abstract: A composite quantum dot structure (4) comprises a charge carrier confinement region, such as a quantum dot (2), a barrier (5) and an electrically conductive layer (3). This structure allows the dimensions of the conductive layer (3) to be substantially independent of the size of the region (2), so that the dimensions of the region (2) can thus be selected in order to achieve desired optical properties, while the electrically conductive layer (3) can be of sufficient thickness to ensure that it can be reliably deposited. The structure may also include a cladding layer (7) (Figure 4) to compensate for any lack of chemical affinity between the barrier (5) and conductive layer (3). An ensemble of such structures be provided in which the quantum dots (1) have various radii but the dimensions of the conductive layers (3) and the overall dimensions of the structures are substantially uniform, e.g. for use in an amplifier configured to amplify light of various wavelengths.

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